

1           CLAIMS:

2       1. A method for moving drilled cuttings from an offshore rig  
3       located in water to a boat in the water adjacent said offshore rig,  
4       said drilled cuttings laden with drilling fluid, said method  
comprising

5               feeding drilled cuttings from a drilling operation  
6       to a cuttings processor, said cuttings processor comprising a  
7       rotating annular screen apparatus,

8               processing the drilled cuttings with the cuttings  
9       processor producing processed drilled cuttings and secondary  
10      material, the secondary material including drilled cuttings  
11      and drilling fluid, said processed drilled cuttings including  
12      drilling fluid,

13              feeding the processed drilled cuttings from the  
14       cuttings processor to positive pressure blow tank apparatus,  
15       said positive pressure blow tank apparatus having a tank which  
16      receives said processed drilled cuttings from said cuttings  
17      processor,

18              feeding the secondary material from the cuttings  
19       processor to secondary apparatus, and

20              supplying air under pressure to the tank of the  
21       positive pressure blow tank apparatus for expelling drilled  
22      cuttings from said tank and propelling said drilled cuttings  
23      to tertiary apparatus.

1       2. The method of claim 1 wherein the tertiary apparatus is  
2       storage apparatus.

1       3. The method of claim 2 wherein the tertiary apparatus  
2       includes a secondary positive pressure blow tank apparatus for  
3       facilitating movement of drilled cuttings from the storage  
4       apparatus.

1       4. The method of claim 1 wherein drilled cuttings from the  
2       positive pressure blow tank apparatus are fed in a line to the  
3       tertiary apparatus, the line having at least one positive pressure  
4       air assist device for facilitating movement of drilled cuttings

5 through the line, the method further comprising  
6 facilitating drilled cuttings movement through the  
7 line with the at least one positive pressure air assist  
8 device.

1 5. The method of claim 1 wherein the cuttings processor  
2 reduces the weight of drilled cuttings processed by removing  
3 drilling fluid from said drilled cuttings, said removed drilling  
4 fluid not fed to said positive pressure blow tank apparatus.

1 6. The method of claim 5 further comprising  
2 reducing a load on the positive pressure blow tank  
3 apparatus and on the tertiary apparatus by removing drilling  
4 fluid from said drilled cuttings with said cuttings processor.

1 7. The method of claim 1 wherein the secondary apparatus is  
2 decanting centrifuge apparatus, the method further comprising  
3 processing the secondary material with the decanting  
4 centrifuge apparatus, producing secondary drilling fluid and  
5 secondary drilled cuttings.

1 8. The method of claim 7 further comprising  
2 recycling said secondary drilling fluid for reuse in  
3 a drilling operation.

1 9. The method of claim 7 further comprising  
2 feeding said secondary drilled cuttings to mill  
3 apparatus for breaking up agglomerations of said secondary  
4 drilled cuttings, and

5 feeding secondary drilled cuttings from the mill  
6 apparatus to the positive pressure blow tank apparatus.

1 10. The method of claim 1 further comprising  
2 prior to feeding drilled cuttings from the cuttings  
3 processor to the positive pressure blow tank apparatus,  
4 feeding said drilled cuttings to mill apparatus to break up  
5 agglomerations of said drilled cuttings and then feeding said  
6 drilled cuttings from the mill apparatus to the positive  
7 pressure blow tank apparatus.

1 11. A method for moving drilled cuttings from an offshore rig

2 located in water to a boat in the water adjacent said offshore rig,  
3 said drilled cuttings laden with drilling fluid, said method  
4 comprising

5 feeding drilled cuttings from a drilling operation  
6 to a cuttings processor, the drilled cuttings laden with  
7 drilling fluid, said cuttings processor comprising a rotating  
8 annular screen apparatus,

9 processing the drilled cuttings with the cuttings  
10 processor producing processed drilled cuttings and secondary  
11 material, the secondary material including drilling fluid and  
12 drilled cuttings, said processed drilled cuttings including  
13 drilling fluid,

14 feeding processed drilled cuttings from the cuttings  
15 processor to positive pressure blow tank apparatus, said  
16 positive pressure blow tank apparatus having a tank which  
17 receives said processed drilled cuttings from said cuttings  
18 processor,

19 supplying air under pressure to the tank of the  
20 positive pressure blow tank apparatus for expelling processed  
21 drilled cuttings from said tank and propelling said processed  
22 drilled cuttings to tertiary apparatus,

23 wherein drilled cuttings from the positive pressure  
24 blow tank apparatus are fed in a line to the tertiary  
25 apparatus, the line having at least one positive pressure air  
26 assist device for facilitating movement of drilled cuttings  
27 through the line, the method further comprising

28 facilitating drilled cuttings movement through the  
29 line with the at least one positive pressure air assist  
30 device,

31 wherein the cuttings processor reduces the weight of  
32 drilled cuttings processed thereby by removing drilling fluid  
33 from said drilled cuttings, said drilling fluid not fed to  
34 said positive pressure blow tank apparatus, and thereby  
35 reducing a load on the positive pressure blow tank apparatus

36 and on the further apparatus.

1 12. The method of claim 11 wherein the secondary apparatus is  
2 decanting centrifuge apparatus, the method further comprising

3 processing the secondary material with the decanting  
4 centrifuge apparatus, producing secondary drilling fluid and  
5 secondary drilled cuttings,

6 recycling said secondary drilling fluid for reuse in  
7 a drilling operation,

8 feeding said secondary drilled cuttings to a mill  
9 apparatus for breaking up agglomerations of said secondary  
10 drilled cuttings,

11 feeding secondary drilled cuttings from the mill  
12 apparatus to the positive pressure blow tank apparatus, and

13 prior to feeding drilled cuttings from the cuttings  
14 processor to the positive pressure blow tank apparatus,  
15 feeding said drill cuttings to mill apparatus to break up  
16 agglomerations of said drilled cuttings and then feeding said  
17 drilled cuttings from the mill apparatus to the positive  
18 pressure blow tank apparatus.

1 13. A method for moving drilled cuttings material, the  
2 drilled cuttings material including drilled cuttings and drilling  
3 fluid, the method comprising

4 feeding the drilled cuttings material to cuttings  
5 processor apparatus, the cuttings processor apparatus  
6 comprising rotating annular screen apparatus,

7 processing the drilled cuttings material with the  
8 cuttings processor producing processed drilled cuttings and  
9 secondary material, the secondary material including drilled  
10 cuttings and drilling fluid, said processed drilled cuttings  
11 including drilling fluid,

12 conveying with fluid under positive pressure  
13 processed drilled cuttings from the cuttings processor to flow  
14 conduit apparatus,

15 applying air under positive pressure to the flow

16 conduit apparatus to continuously move the processed drilled  
17 cuttings therethrough,

18 continuously moving the processed drilled cuttings  
19 with the air under pressure to separation apparatus, and

20 with the separation apparatus continuously  
21 separating processed drilled cuttings from the air.

1 14. The method of claim 13 further comprising

2 flowing the processed drilled cuttings to expansion  
3 chamber apparatus, and

4 reducing density of the processed drilled cuttings  
5 in the expansion chamber apparatus.

1 15. The method of claim 13 wherein the density of the drilled  
2 cuttings material is reduced by flowing air into said material  
3 within the expansion chamber apparatus.

1 16. The method of claim 13 further comprising

2 moving separated drilled cuttings from the  
3 separation apparatus to further apparatus from the group  
4 consisting of cuttings box, tank, storage device, container,  
5 receptacle on a boat, decanting centrifuge apparatus, and  
6 secondary rotating annular screen apparatus.

1 17. The method of claim 13 wherein the drilled cuttings  
2 material is included within a slurry of material, wherein the  
3 slurry has a low slurry density, and wherein upon mixing of the  
4 slurry with the fluid under positive pressure a resultant slurry is  
5 produced, the resultant slurry having a high particle density.

1 18. The method of claim 17 wherein the slurry has a specific  
2 gravity between 2.3 and 4.0 and the particle density of the  
3 resultant slurry is between 2 pounds/gallon and 4 pounds/gallon.

1 19. A system for moving drilled cuttings, the system  
2 comprising

3 movement apparatus for moving drilled cuttings,  
4 cuttings processor apparatus for receiving drilled  
5 cuttings from the movement apparatus and for processing the  
6 drilled cuttings for feed to tank apparatus, the cuttings

7 processor apparatus including rotating annular screen  
8 apparatus,

9 tank apparatus for receiving drilled cuttings from  
10 the cuttings processor apparatus,

11 flow conduit apparatus for receiving drilled  
12 cuttings from the tank apparatus,

13 pressurized fluid apparatus for applying air under  
14 positive pressure to the drilled cuttings and for continuously  
15 moving the drilled cuttings through the flow conduit apparatus  
16 and to separation apparatus, and

17 separation apparatus for continuously receiving the  
18 drilled cuttings through the flow conduit apparatus, the  
19 separation apparatus for separating the drilled cuttings from  
20 air.

1 20. A method of conveying a paste, the paste including  
drilled cuttings laden with fluid, the method comprising

3 feeding the paste to a cuttings processor, the  
4 cuttings processor comprising a rotating annular screen  
5 apparatus,

6 reducing the weight of said paste with the cuttings  
7 processor by removing fluid from the paste, the cuttings  
8 processor producing produced material that includes drilled  
9 cuttings and fluid,

10 feeding the produced material from the cuttings  
11 processor into a vessel,

12 applying a compressed gas to the vessel to cause the  
13 produced material to flow out of the vessel, the vessel  
14 including a conical hopper portion which, at least during  
15 discharge of the produced material, forms the lower section of  
16 the vessel and the cone angle is below a critical value  
17 required to achieve mass flow of the produced material.

1 21. The method of claim 20 wherein the produced material fed  
2 to the vessel from the cuttings processor is a free-flowing paste.

1 22. The method of claim 20 wherein the produced material fed

2 to the vessel from the cuttings processor is a non-free-flowing  
3 paste.

1 23. The method of claim 20 further comprising  
2 accomplishing said method on a boat.

1 24. The method of claim 22 further comprising  
2 feeding processed drilling cuttings processed by  
3 said method to a boat in water adjacent said offshore rig,  
4 said drilling cuttings having less drilling fluid therein by  
5 weight than the drilling cuttings initially fed to the  
6 cuttings processor.

1 25. The method of claim 20 further comprising  
2 accomplishing said method on an offshore drilling  
3 rig.

1 26. The method of claim 24 wherein fluid content of said  
2 processed drilling cuttings is at least 500% less by weight than  
3 fluid content of the drilled cuttings fed to the cuttings  
4 processor.